What is claimed is:

1. A clamp apparatus comprising:

a clamp member configured to be disposed around a perimeter of a flange, the clamp member having a bead configured to engage a groove disposed in a perimeter edge of the flange.

2. The clamp apparatus according to claim 1 wherein said bead is discontinuous.

3. The clamp apparatus according to claim 1 wherein the clamp member is configured to be connected to a second clamp member.

4. The clamp apparatus according to claim 1, wherein the clamp member comprises more than one clamp member segments.

5. The clamp apparatus according claim 4 wherein the more than one clamp member segments are configured to be joined together by lap joints.

6. The clamp apparatus according to claim 1 wherein the clamp member comprises a mounting feature for mounted external structures to the clamp member.

7. A method of joining a first vacuum system component having a flange and a second vacuum system component having a flange, the method comprising:

securing a first clamp member around the perimeter of the first vacuum system component flange;

securing a second clamp member around the perimeter of the second vacuum system component flange;

coupling the first clamp member and the second clamp member, whereby a compressive force urges the first vacuum system component flange towards the second vacuum system component flange.

8. The method according to claim 7 wherein the step of securing the first clamp member around the perimeter of the first vacuum system component flange comprises providing a bead on the first clamp member, the bead engaging a groove in a peripheral edge of the first vacuum system component flange.

9. The method according to claim 7 wherein the step of securing the second clamp member around the perimeter of the second vacuum system component flange comprises providing a bead on the second clamp member, the bead engaging a groove in a peripheral edge of the second vacuum system component flange.

10. The method according to claim 7 further comprising the step of providing a third vacuum system component disposed between the first vacuum system component and the second vacuum system component, and whereby coupling the first clamp member and the second clamp member seals the first vacuum system component to a first portion of the third vacuum system component and seals the second vacuum system component to a second portion of the third vacuum system component.

11. The method according to claim 7 wherein coupling the first clamp member and the second clamp member comprises providing a threaded fastener extending between the first clamp member and the second clamp member.

12. A system for mounting an external apparatus to a vacuum system comprising:

a vacuum system component having a flange, wherein the flange comprises a groove disposed in a surface defining a perimeter of the flange;

a mount for the external apparatus having a bead configured to engage the groove in the flange, wherein the mount may be secured in a predetermined angular orientation relative to the

flange.